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QUALITY OF CARE AND OUTCOMES ASSESSMENT

PREDICTIVE MODEL FOR SIX-MONTH RISK OF DEATH OR HOSPITALIZATION IN AMBULATORY HEART FAILURE PATIENTS

ACC Poster Contributions

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Session Title: Outcomes Assessment in Heart Failure I

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Authors: Scott Hummel, Todd M. Koelling, University of Michigan, Ann Arbor, MI

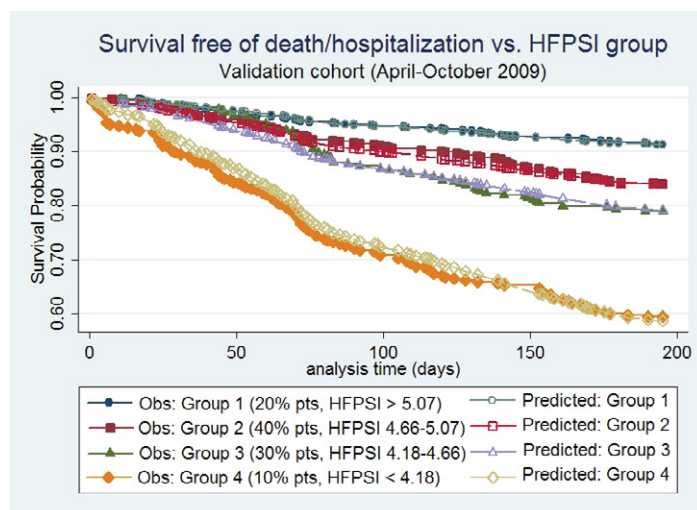
Background: Most current models predict mortality in ambulatory heart failure (HF) patients, but not hospitalization. Improved resource targeting through risk-stratification might decrease HF hospitalizations.

Methods: In 1149 HF patients (followed Jul 1-Dec 31, 2007 at one academic center), we obtained demographic and clinical data suspected or previously shown to predict outcomes. We used logistic regression, then Cox proportional hazards models to predict risk of death and/or non-surgical hospitalization over this 6-month period. Following backwards stepwise selection, the final models included recent hospitalizations (HOSP), NYHA class, serum sodium, estimated glomerular filtration rate (eGFR), blood urea nitrogen (BUN), and log BNP. We calculated a risk score (HFPSI) with the Cox coefficients and grouped patients by inspecting Kaplan-Meier plots of score deciles. We then used HFPSI in logistic regression and Cox models to predict outcomes in 1982 patients followed Apr 1-Oct 12, 2009 in the center's HF disease management program.

Results: Derivation cohort: C-statistic 0.68; by Cox regression:

$$\text{HFPSI} = \text{ABS}(\text{NYHA } 2 \times 0.18 + \text{NYHA } 3 \times .28 + \text{NYHA } 4 \times .60 + \text{HOSP}(\text{last } 1 \text{ mo}) \times 1.14 + \text{HOSP}(\text{last } 2\text{-}6 \text{ mo}) \times .64 - \text{eGFR} \times .009 + \text{BUN} \times .005 - \text{sodium} \times .04 + \log \text{BNP} \times .18)$$

Validation cohort: HFPSI C-statistic 0.70



Conclusions: Easily obtainable clinical data may adequately stratify ambulatory HF patients for 6-month risk of death and/or hospitalization. Further validation of this model in other HF populations is needed.